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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,278	09/07/2004	Charles H. Honeyman	H-307DIV	5277

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DAVID J COLE
E INK CORPORATION
733 CONCORD AVE
CAMBRIDGE, MA 02138-1002

EXAMINER	
TSOY, ELENA	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 04/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/711,278	HONEYMAN ET AL.	
	Examiner	Art Unit	
	Elena Tsoy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21 and 30-34* is/are pending in the application.

4a) Of the above claim(s) *2-7 and 30-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,8-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/11/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

Amendment filed on April 11, 2005 has been entered. Claims 22-29 have been cancelled. New claims 30-34 have been added. Claims 1-21, and 30-34 are pending in the application.

Claims 30-34 are withdrawn from further consideration as being drawn to a non-elected invention.

Election/Restrictions

1. Applicant's election without traverse of Claims 1-21 in the reply filed on April 11, 2005 is acknowledged.

Newly submitted claims 30-34 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

2. Claim 1 is generic to a plurality of disclosed patentably distinct species comprising bonding the polymerizable group to the particle surface via: (i) an ionic bond (Claims 2-7) or (ii) covalent bond (Claims 8-10). Applicant is required under 35 U.S.C. 121 to elect a single disclosed species (either Claims 2-7 **or** Claims 8-10), even though this requirement is traversed.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with David Cole on April 21, 2005 a provisional election was made with traverse to prosecute specie (i), claims 8-10. Affirmation of this election must be made by applicant in replying to this Office action. Claims 2-7 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

3. Claim 15 objected to because of the following informalities: "where by the polymer formed on the particles" should be changed to "where ~~by~~ the polymer formed on the particles".

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is provisionally rejected under the judicially created doctrine of double patenting over claim 41 of copending Application No. 10/711,829. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, with only difference that claim 41 recites that the step (b) is carried out in an aliphatic hydrocarbon. Since Claim 1 of instant application covers <u>any</u> medium for carrying out the step (b), it would include the aliphatic hydrocarbon.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending

application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –.
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 8-11, 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakai et al (US 5,750,258).

Sakai et al discloses a process for producing crosslinked resin-coated silica fine particle (claimed pigment particles) comprising reacting the silane portion of the vinyl-containing silane coupling agent such as vinyltrimethoxysilane, vinyltriethoxysilane (See column 5, line 20) with the silanol group on the calcined silica fine particle to form a chemical bond (claimed covalent bond), then reacting the vinyl group of the silane coupling agent with the unsaturated double bond of a monomer mixture comprising a monofunctional vinyl monomer (M) and a polyfunctional vinyl monomer (P) with P/M molar ratio of 70/30 mol (See column 7, lines 49-56), for forming the crosslinked resin coating when the monomers are polymerized, to form a chemical bond, whereby a crosslinked resin coating excellent in adhesion is formed on the surface of each calcined silica fine particle through the vinyl-containing silane coupling agent (See column 4, lines 53-67; column 5, lines 1-15, 38-39). The polyfunctional monomers include acrylates and

methacrylates of polyhydric alcohols, polyethylene glycol dimethacrylate (claimed monomer having a chain of at least about four carbon atoms attached to a polymerizable group) etc. (See column 8, lines 33-43) (i.e. the polymer formed on the particles would comprise a main chain and a plurality of side chains extending from the main chain, each of the side chains comprising at least about four carbon atoms).

8. Claims 1, 8, 11-13, 19, 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Devonport (US 6,103,380).

Devonport discloses in the Background of the Invention that a process for producing a polymer-coated carbon black (claimed pigment) particle comprising growing polymers (with at least one monomer or oligomer) from an activated carbon black surface by first attaching a reactive group via the oxygen groups on the carbon black surface by using glycidyl methacrylate where the glycidyl group reacts with phenolic hydroxyl groups on the carbon black surface providing a **vinyl** functionality (for claimed radical polymerization); the reaction of 4,4'azo bis-(4-cyanovaleric acid) whereby the isocyanate group reacts with phenolic hydroxyl groups and subsequent heating decomposes the azo group to generate an alkyl **radical** (claimed polymerization initiating group); and the reaction of the phenolic hydroxyl groups with butyl lithium which can then be used as an **initiation site** (claimed polymerization initiating group) for anionic polymerization (See column 1, lines 33-41) thereby causing the formation of polymer (covalently) bonded to the particle, was known in the art.

As to claim 12, Devonport teaches that polymer-coated carbon black can be produced by chemically attaching (See column 8, lines 36-41) groups of formula (II) containing labile halide (See column 2, lines 38-54) such as benzyl chloride (See column 6, line 56) which permits the formation of radical groups (See column 6, lines 46-48), then reacting these groups with a

polymerizable monomer thereby attaching polymers to the attached groups (See column 8, lines 47-62).

As to claim 13, the polymerization reaction thus can produce any length of polymer on the modified particle; and the polymers can be any type, such as homopolymers, co-polymers, ter-polymers, or higher chain polymers, and also can be **block**, graft, or random-type polymers (See column 9, lines 27-34). It is well known in the art that a block polymer is made by sequentially adding monomers: adding a second monomer after stopping polymerization of a first monomer.

As to claims 19, 20, silica-coated carbon product can also be used as the particle (See column 5, lines 53-54).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 13, 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devonport (US 6,103,380) in view of Matyjaszewski et al (US 6,121,371).

Devonport are applied here for the same reasons as above. Devonport further teaches that the polymers can be of **any type**, such as homopolymers, co-polymers, ter-polymers, or higher chain polymers; and they can also be block, graft, or random-type polymers (See column 9, lines 30-34). Devonport fails to teach that: a block polymer can be made by adding a second monomer after stopping polymerization of a first monomer (Claim 13); the polymerization is carried out with wherein a monomer comprising a group capable of initiating polymerization but which essentially does not initiate such polymerization under the conditions used for polymerization of a

first monomer, and following this step, the polymer-bearing particle is contacted with a monomer under conditions which cause the group capable of initiating polymerization to initiate polymerization of the monomer, thereby causing the formation of a branched-chain polymer on the particle (Claims 15, 16).

Matyjaszewski et al teach that any type of polymers including block, branched and comb polymers can be prepared using radical polymerization initiator (See column 1, lines 6-10):

block copolymers can be prepared using a pre-formed macroinitiator to initiate the polymerization by sequential addition of monomer: upon the consumption of all or most of a first monomer, a second monomer is added which is then added to the polymer chain (See column 7, lines 45-64);

branched and hyperbranched polymers can be prepared by (co)polymerization of AB* monomers. Such monomers have a polymerizable double bond (A) and a functional group that can initiate ATRP (B*), e.g. a radically transferable atom or group (See column 7, lines 65+); and

comb shaped polymers can be prepared from macroinitiators that contain a free radically transferable atom or group on each monomer unit, or regularly along the polymer chain, such that the branches or grafts are forced to physically interact at a molecular level (See column 8, lines 16-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have coated a particle in Devonport using techniques of Matyjaszewski et al with the expectation of providing the desired coating of block, branched, or comb polymer, since Devonport further teaches that the polymers can be of **any type**, such as homopolymers, co-polymers, ter-polymers, or higher chain polymers; and they can also be block, graft, or random-

type polymers, and Matyjaszewski et al teach that any type of polymers including block, branched and comb polymers can be prepared using radical polymerization initiator.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Devonport (US 6,103,380) or Sakai et al (US 5,750,258) in view of Uytterhoeven et al (US 4,663,265).

Devonport/Sakai et al are applied here for the same reasons as above. Devonport/Sakai et al fail to teach that the polymer-coated pigment particle may be used for forming an electrophoretic medium by dispersing into a suspending fluid.

Uytterhoeven et al teach that polymer-coated pigment particle may be used for forming an electrophoretic medium by dispersing into a suspending fluid (See column 2, lines 46-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made polymer-coated pigment particle of Devonport/Sakai et al for the use in an electrophoretic medium by dispersing into a suspending fluid since Uytterhoeven et al teach that polymer-coated pigment particle may be used for forming an electrophoretic medium by dispersing into a suspending fluid.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (571) 272-1429. The examiner can normally be reached on Mo-Thur. 9:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-141523. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER
ETsoy

April 21, 2005